

REMARKS

Claim 1 has been amended to incorporate the recitations of claim 26. Claims 19-32 and 34-35 have been canceled. Claim 37 has been added based on the disclosure at page 13, line 16 and page 17, lines 22-24 in the specification. Claims 38-45 have been added corresponding to claims 2-7, 33, and 36, respectively, except for depending directly or indirectly on claim 37. Claim 46 has been added based on the disclosure at page 16, lines 23-25 and page 17, lines 22-24 in the specification.

Entry of the above amendment is respectfully requested.

Obviousness Rejections

Claims 1, 2, 4, 5, 19, 20, 22, 23, 33, 34, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Balog (Balog, J. M. (2003). *Avian and Poultry Biology Reviews*, 14(3); pp. 99-126) in view of Emmessar Biotech & Nutrition Ltd. Webpage (available Dec. 4, 2000). Claims 21 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Balog and Emmessar as applied to claims 1, 2, 4, 5, 19, 20, 22, 23, 33, and 34, and further in view of Cook (U.S. 6,852,333). Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Balog, Emmessar, and Cook as applied to claims 1, 2, 4, 5, 19, 20, 22, 23, 33, and 34, and further in view of Molly (WO 03/043440). Claims 1-6, 26-31, 33, 35, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook (U.S. 6,852,333) in view of Zhang (U.S. 6,875,890). Claims 7 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cook in view of Zhang as applied to claims 1-6, 26-31, 33, and 35, and further in view of Molly (WO 03/043440).

In response, Applicants note initially that in the previous reply, Applicants had argued that Cook discloses to reduce the feed conversion rate (FCR) in poultry by the use of an antistress agent which may not be simply a nutritional modifier but which has to be a physiological and/or psychological stress reducer per se. Since Zhang discloses the use of DMG as a nutritional supplement to improve physical and mental performance by helping the body to adapt to the various forms of stress, but not to treat stress per se, Applicants have argued that it is not obvious to use the DMG disclosed by Zhang as “antistress agent” in the method of Cook.

Referring to col. 8, lines 8-12, the Examiner now argues on page 13 of the Office Action that Cook explicitly states that amino acids are a preferred class of antistress agent and that DMG, which is disclosed as being an antistress nutrient by Zhang, is also an amino acid. First of all, it should be noted that in col. 8, lines 8-12, Cook mentions four preferred classes of antistress agents, namely pyridyl propanones, antiprogestins, benzoylamoно dipropylamino oxopentanoics and “amino acids or peptides” such as astressin which is a corticotrophin releasing factor (CRF) antagonist. This latter class therefore does not include amino acids or peptides in general but only those which have antistress properties such as astressin (which is a corticotrophin releasing factor antagonist and which attenuates the anxiogenic-like response induced by stress situations: see for example the enclosed abstract of “Behavioral effects of central administration of the novel CRF antagonist astressin in rats” by Spina et al. on the webpage <http://www.biopsychiatry.com/astressin.htm>). Moreover, it is not correct that DMG would be an amino acid. In fact it is a derivative of the amino acid glycine, namely glycine the amino group of which is substituted with two methyl groups (DMG = dimethyl glycine).

The Examiner argues that DMG is not mentioned in the prior art patents mentioned by Cook in col. 2, lines 5-29. According to Cook, these prior art patents disclose nutritional

supplements for use in reducing the effects of stress on animals, but they do not (in particular US 4600586) disclose the use of anxiolytics. Applicants notice, however, that US 4600586 does disclose in col. 4, line 64 the use of a number of amino acids, including glycine, so that these amino acids, and in particular glycine, are clearly not considered as being an anxiolytic or stress agent by Cook. Cook does disclose antistress agents comprising amino acids, but only very specific combinations, in particular, vitamin C in combination with valine, leucine and isoleucine (see for example col. 8, lines 18-31). Consequently, Applicants maintain the point of view that it is not obvious to use DMG, disclosed as an antistress nutritional supplement but not as a physiological and/or psychological stress reducer *per se* in Zhang (see col. 1, lines 44-45), as an antistress agent in the method of Cook.

In addition, in order to further distinguish the invention from the method disclosed in Cook, Applicants have now added claim 37 and claims dependent thereon directed to "*a method for increasing the apparent metabolizability of the dry matter of feed used to raise poultry thereby reducing the conversion rate of said feed*". Support for this amendment can be found on page 13, line 16 and page 17, lines 22-24. Moreover, Applicants have added claim 46 for the feature that "*the apparent metabolizability of the proteins contained in said feed is increased by orally administering said glycine compound to the poultry*". Support for this feature can be found on page 16, lines 23-25 and page 17, lines 22-24.

Cook discloses the use of an antistress agent to reduce the FCR in poultry. Test results with poultry have been disclosed in Experiment 7 (in col. 15-17). At the end of this experiment Cook mentions that the increase in the growth rate appeared to be achieved entirely by a reduction in the physiological stress response, or a stimulation of another growth pathway. The most significant difference to control was seen in stressed animals. The stress alleviating

composition (SAC) appeared to work by increasing the efficiency by which feed was converted into body weight, with fat analyses showing that the amount of fat deposited in response to the cold stress was reduced.

Cook nowhere teaches an increase of the metabolizability of the feed. Cook only teaches that the stress response is reduced, especially in stressed animals, and that other growth pathways may be stimulated to increase the feed conversion rate. As described on page 12, lines 10-19 of the present patent application, the apparent metabolizability of a micronutrient is determined by the difference between the content of this nutrient in the feed and the content thereof in the feces. Cook only discloses to convert the metabolizable fraction of the feed with a higher efficiency into body weight, but is not concerned with the fraction of the feed which is “lost” in the feces, i.e., the non-metabolizable fraction of the feed. If one can increase the metabolizability of the feed, the body weight gain can thus even further be increased.

The present inventors have found that orally administering DMG to the chickens increases quite surprisingly the metabolizability of the feed. A larger amount of the nutrients in the feed can thus be used for the metabolic processes and in particular for the gain in body weight. This is not obvious in view of Cook since Cook only teaches to reduce the stress response and to convert the metabolizable fraction of the feed more efficiently into body weight (for example, by increasing the amount of lean tissue and decreasing the amount of body fat (see Experiment 14 and the results thereof in Figure 21)).

Further, it is submitted that the claimed invention is not obvious over the cited art for the reasons of record as well, and thus reconsideration of those reasons is respectfully requested.

Thus, Applicants submit that the present invention is not obvious over the cited art, and withdrawal of these rejections is respectfully requested.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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